SIGMA XI QUARTERLY

Vol. XIV JUNE, 1926 No. 2

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SIGMA XI QUARTERLY

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VOL. XIV JUNE, 1926 No. 2

To the Chapters of the Sigma Xi:

At the recent installation of a chapter of the Society of the Sigma Xi at the University of Cincinnati, Dr. Henry B. Ward made a stirring address on the history and the ideals of the Sigma Xi. I cannot repeat the words of that address, but perhaps I can convey to you something of its lofty spirit.

The name of our organization, the Society of the Sigma Xi (Companions in Zealous Research), indicates the ideals that inspired its founding and that have given direction to its policies. Its key is not a sort of medal awarded because the wearer of it did at some time or other a piece of research, but it is a token of the fact that he is now in ardent pursuit of new scientific truths. Membership in the Society does not compliment one so much for past achievements as it imposes the duty of being continually worthy of the fellowship that it affords. The purposes of the Society are all serious, and its outlook is mostly toward the future. May all the chapters during the coming year receive new inspiration from their membership in the Society and enjoy more abundantly than ever before the pleasures of extending the domains of knowledge.

F. R. MOULTON

A FEW IMPRESSIONS FROM A VISIT TO GREAT BRITAIN

We are at our desk again after a ten months' visit to British universities and scientific institutions. We are glad to be at home. During our absence, forward steps have been taken by Sigma Xi, as is normal in a rapidly expanding organization, and one feels constrained to make immediate comment upon the Society's progress. We have not been out of touch with the Society's affairs during the year, but it is better to reserve such comment until the September issue of the Quarterly, when the new year's activities of the chapters will be about to begin.

We cannot refrain from reporting at this time to all our colleagues in Sigma Xi, for whatever of benefit a brief statement may have and while the many incidents of a year in Great Britain are still fresh, some of the impressions derived from a visit among British research workers in industries, government offices and in universities—impressions made both by the workers themselves and by the organizations with which they are associated. From the many we should like to write about, we select the following.

The British educational process produces solid results. There is no call to rehearse to our college and university colleagues at home what the process is, but it is well for all of us who are responsible for our educational products to consider thoughtfully the results attained by the British system, the methods by which the results are achieved, and the effects on British government and British progress. As everybody knows, when the English lad goes up to the university he is mature enough in mind to give intensive and, in a real sense, broad attention to a particular field of study. It is specialization without narrowness, concentration and breadth combined, possible in Great Britain because the foundations laid in the great preparatory schools of the country are sure, because study in a narrow field can be pursued in a broad way, and because the change in mental need of the students is in Great Britain accompanied by a change in institution and environment. Through the intimate personal supervision of the undergraduates, the chances for securing unmerited credit are so remote as to be impossible. Examinations given at the end of concentrated study cover the entire field of the chosen

subject. The result of such training is independence and power in thinking and accuracy, firm grip and permanent possession of knowledge. It is educational solidity.

The process which achieves the result is wholesome. The student works hard; he cannot escape hard work if he is to attain to his degree. To fail to secure the degree is held to be a social and an intellectual disgrace. He works steadily, progressively, not nervously nor spasmodically. A reason for this is his wholesome attention to sports. He comes up to the university prepared for sport as well as for intellectual training of high order. He is expected to give a part of his day to sport. Provision is made for sport in his daily schedule. Lectures are not given between one and five in the afternoon. There is thus no conflict, no friction between sport and study. The student is never harassed by the consciousness that when at sport he ought perhaps to be at some lecture, or that there is some one who thinks he ought to be and is waiting to tell him so when he comes from the field. After his bath and his tea, he is ready for the lectures that may be scheduled during the period from five to seven. The dinner hour at seven-thirty or at eight is not unreasonable nor unwholesome—there are several good working hours after dinner is over. The program provides for and assures a nerveless, forcible attack on the severe mental tasks the university sets, a clear mind for retaining details of a subject and for applying intelligence in the original recasting of knowledge which the rigid and exhaustive examinations require. The examinations are intelligence tests on an exalted plane.

There is a close connection of this solid, wholesome training with the civilization that is British and with the stability of character which the intelligent Britisher has ever shown, especially in the hour of national stress and crisis. Evidence of this connection is everywhere apparent—in the House of Commons when debates are in progress, in public meetings at the universities presided over and participated in by university officers, in private discussions between individuals, whether the individuals happen to be undergraduates in residence at universities or graduates in business and professional life. In a crisis, the situation is considered exactly as it is, not lightly nor superficially nor hysterically, but seriously, profoundly, judicially. Facts are sought persistently and fearlessly; when found, they are grappled with forcibly and intelligently. The British mind appears at its best in a crisis.

We had abundant opportunity to observe this during the general

strike in May. From whatever angle that conflict is viewed, whatever may have been its industrial aspect, under the circumstances under which it was called (when Mr. Baldwin, representing the government, was negotiating with the miners and mine owners), the general strike was aimed, whether consciously or unconsciously, at constitutional government. The intelligentsia of Great Britain recognized that at once. The labor leaders, who called the strike, acknowledged it in the terms of settlement, printed over their signature in every newspaper in the land. That is the British national mind recognizing, acknowledging, grappling with a fact. The general strike was an appeal to force, not to reason. The reasoning portion of the British public at once applied force intelligently to the situation. It was normal for university undergraduates to make immediate response to the government's call for volunteers and to engage in all sorts of occupations. We were not surprised when a superintendent of docks in Southampton, who in normal times oversees the labor of 1500 uneducated and unskilled stevedores, told us that the 1100 university students who for a week unloaded flour from the ships at the wharves were "husky youngsters" who handled as many tons of cargo in three hours as his regular crew handled in eight. That is wholesome physical power intelligently applied. The stability of British society and government expresses the sound thinking and sturdy bodies of the educated British people.

The visitor from the United States to Great Britain experiences only generous cordiality and delightful courtesy from business men, scientists, scholars, educators, members of government, from the Britishers generally. There is no pretense about this welcome. It is not given as from a great scientist to a teacher of chemistry, as from an educator to an officer of an American college, as from a business man to a college professor, it is unselfish. It is based upon the desire for closer acquaintance on the part of the broad minded Englishman accustomed by hundreds of years of world contacts to thinking in large terms; also upon a profound sense of the common inheritance of the two nations, and upon the recognition of the fact that our essential similarities are not so much due to blood as to the fundamental correctness of our common ideals of scholarship, of society, of government. Whether he is the president of an immense industrial organization as Hadfields, Ltd., the director of the National Physical Laboratory at Teddington, the leading executive officer of the National Bureau of Industrial Research, the ranking

professor of the Royal Institution, a prominent figure in the House of Lords or in the House of Commons, or in the Cabinet, a professor of science, or history, or literature, or art, the head of a college, or chancellor of a university, he makes the visitor from the United States feel at home by a warm-hearted, sincere hospitality, generously extended.

What is here thus briefly and inadequately recorded will be the experience of any one of us, whatever the field of study, who chooses to spend a sabbatical leave among British educators and research men. He will return to his work at home with a profound sense of the solidity and wholesomeness of English education and of its close association with the stability of British political foundations, and with deep, heartfelt gratitude for abundant and universal kindnesses.

We shall be glad to share the benefits of our experience with members of Sigma Xi who may be planning a visit to England. An opportunity to help will be accepted as one way of expressing gratitude for what we have so generously received.

EDWARD ELLERY

INSTALLATION AT THE UNIVERSITY OF CINCINNATI

The installation of a chapter of Sigma Xi at the University of Cincinnati took place at 3 P.M., April 29, 1926, in the Woman's Building at the University of Cincinnati. Dr. Forrest R. Moulton, of the University of Chicago and president of the National Society, and Dr. Henry B. Ward, of the University of Illinois, former president of the Society and acting for the National Secretary, were the installing officers.

Following the installation, a banquet was held where the address of welcome was given by Dr. Frederick C. Hicks, president of the University of Cincinnati. Dr. H. M. Benedict was toastmaster. Responses were made for the chapter by Dr. Nevin Fenneman and by Dr. Herman Schneider, dean of the College of Engineering. Dr. Ward gave a short address on "Yesterday and Tomorrow," being a discussion as to the history and objects of the Society. The main speaker was Dr. Moulton, who gave an illustrated address on modern ideas in astronomy.

The officers of the new chapter are:

President: Dr. O. C. VON SCHLICHTEN, Department of Geology.

Vice-President: Dr. G. D. MCLAUGHLIN, Department of Leather Research, Tanner's Council of America.

Secretary-Treasurer: Dr. SAUL B. ARENSON, Department of Chemical Engineering.

The charter members are:

SAUL B. ARENSON, *Instructor in Chemical Engineering*, College of Engineering and Commerce, Sigma Xi, Nebraska, 1918.

I. A. BARNETT, *Assistant Professor of Mathematics*, College of Liberal Arts, Sigma Xi, Chicago, 1918.

O. V. BATSON, *Assistant Professor of Anatomy*, College of Medicine, Sigma Xi, Wisconsin, 1921.

F. E. BEGHTEL, *Instructor in Botany*, College of Liberal Arts, Sigma Xi, Indiana, 1917.

C. H. BEHRE, JR., *Assistant Professor of Geology*, College of Engineering and Commerce, Sigma Xi, Chicago, 1921.

H. J. BEHRE, *Research Chemist*, Union Central Life Insurance Co., Cincinnati, O., Sigma Xi, Chicago, 1920.

H. M. BENEDICT, *Professor of Botany*, College of Liberal Arts, Sigma Xi, Nebraska, 1897.

E. M. L. BURNS, University of Cincinnati, Cincinnati, Ohio, Sigma Xi, Yale, 1922.

R. K. BURNS, JR., *Instructor in Zoology*, College of Liberal Arts, Sigma Xi, Yale, 1924.

E. C. CASE, *Assistant Professor of Geography*, College of Liberal Arts, Sigma Xi, Chicago, 1920.

E. F. FARNAU, *Associate Professor of Organic Chemistry*, College of Engineering and Commerce, Sigma Xi, Cornell, 1912.

N. M. FENNEMAN, *Professor of Geology and Geography*, College of Liberal Arts, Sigma Xi, Alumni-Chicago; First President, Sigma Xi, Univ. Wisconsin.

M. H. FISCHER, *Joseph Eichberg, Professor of Physiology*, College of Medicine, Sigma Xi, California, 1903.

H. S. FRY, *Professor of Chemistry*, College of Liberal Arts, Sigma Xi, Ohio State, 1922.

H. M. GOETTSCH, *Professor of Inorganic Chemistry*, College of Engineering and Commerce, Sigma Xi, Iowa (Charter member), 1898.

J. H. HOSKINS, *Assistant Professor of Botany*, College of Liberal Arts, Sigma Xi, Chicago, 1920.

D. E. JACKSON, *Professor of Pharmacology*, College of Medicine, Sigma Xi, Indiana, 1905.

W. D. JOHNSTON, JR., *Honorary Fellow in Geology*, Graduate School, Sigma Xi, Chicago, 1921.

A. P. MATHEWS, *Andrew Carnegie Professor of Biochemistry*, College of Medicine, Sigma Xi, Chicago (Charter member), 1903.

L. T. MORE, *Professor of Physics and Dean of the Graduate School*, Sigma Xi, Nebraska, 1898.

L. A. PECHSTEIN, *Professor of Education and Dean of the College of Education*, Sigma Xi, Chicago, 1916.

S. TASHIRO, *Associate Professor of Biochemistry*, College of Medicine, Sigma Xi, Chicago, 1911.

R. S. TOUR, *Professor of Chemical Engineering*, College of Engineering and Commerce, Sigma Xi, Michigan, 1910.

D. A TUCKER, *Associate Professor of Contagious Diseases*, College of Medicine, Sigma Xi, Michigan, 1913.

O. C. VON SCHLICHTEN, *Assistant Professor of Geology*, College of Engineering and Commerce, Sigma Xi, Wisconsin, 1913.

C. J. WEIDENSALL, *Interne General Hospital*, Sigma Xi, Chicago, 1910.

H. L. WIEMAN, *Professor of Zoology*, College of Liberal Arts, Sigma Xi, Chicago, 1908.

O. T. WILSON, *Associate Professor of Botany*, College of Liberal Arts, Sigma Xi, Kansas, 1912.

S. J. MCI. ALLEN, *Professor of Experimental Physics*, College of Liberal Arts.

LOUIS BRAND, *Professor of Mathematics*, College of Engineering and Commerce.

W. H. BUCHER, *Professor of Historical Geology*, College of Liberal Arts.

R. C. GOWDY, *Professor of Physics*, College of Engineering and Commerce.

HARRIS HANCOCK, *Professor of Mathematics*, College of Liberal Arts.

G. D. MCLAUGHLIN, *Professor, Department of Leather Research*, College of Engineering and Commerce.

H. H. MARTIN, *Assistant Professor of Geography*, College of Engineering and Commerce.

C. N. MOORE, *Professor of Mathematics*, College of Liberal Arts.

J. G. PORTER, *Professor of Astronomy*, College of Liberal Arts, and Director of the Observatory.

HERMAN SCHNEIDER, *William Thoms, Professor of Civil Engineering and Dean of of the College of Engineering and Commerce.*

S. B. ARENSON, *Secretary*

REPORTS OF SIGMA XI FELLOWS FOR 1925–26

RESEARCHES ON QUINAZOLINES

A preliminary report of the preparation of quinazoline and certain of its derivatives with the view toward determining their physiological properties.

Our present knowledge of the action of chemical substances upon the animal organism has been gained in a variety of ways and through a variety of circumstances. We are now capable of classifying many types with reference to their physiological activity, and as a result have been able to make certain definite, but in the main, empirical statements regarding the relation of chemical constitution to physiological action.

Progress in this broad field of physiological action, and therefore progress in the application of chemistry to the elimination of human suffering, will be more materially advanced by a particular study of each member of related series than by any haphazard choosing of compounds for investigation. In this manner the effect of regular variations in structure would become apparent, and with sufficient data, prediction of the action of any definite compound in the series should become more precise.

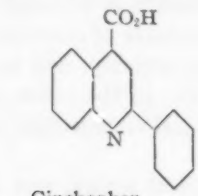
With a view toward enlarging the scope of present investigations and permitting a more ambitious program in this field, an inquiry was made into the type of work being carried on by many of the pharmacologists of the country. As reported by Professor Bogert at the Tulsa meeting of the American Chemical Society in April 1926, many of them were very glad to give this information and gave assurance of their readiness to cooperate in the testing of new compounds in which they were interested and which would be obtained as the result of such researches outlined above.

With such much-needed cooperation between the chemical and pharmacological research laboratories there should be a steady and valuable increase in our capacity for service through chemistry and pharmacology.

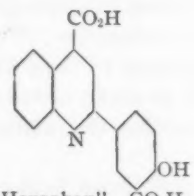
The researches of Bogert and his students into the chemistry of the quinazolines has laid the groundwork, from the physiological standpoint, for an investigation of the pharmacology of this series. Since

many of the compounds produced in both the plant and animal kingdom are of the heterocyclic nitrogen type, and since certain members of this type possess pronounced and specific physiological action, it was thought that a study of this simple series should yield valuable information.

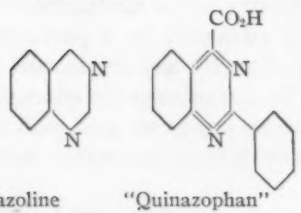
Bogert and Nabenhauer[1] have reported the preparation of several quinazoline analogs of cinchophen and its derivatives and have suggested that these quinazolines, like the cinchophen analogs, might have a specific uric-acid-eliminating property and might therefore prove valuable in the treatment of gout.



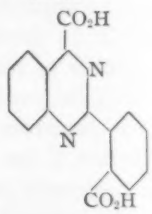
Cinchophen



"Hexophan"



Quinazoline "Quinazophan"



Bogert and Nabenhauer prepared both the quinazoline analog of cinchophen, and of its derivative, hexophan. They stated that the former is somewhat bitter while the diammonium salt of the latter is very slightly sweetish in taste. A preliminary test showed the latter to be non-toxic to rabbits.

To begin the present research, therefore, the latter compound was prepared, and a preliminary report of its physiological action has been received from Professor E. W. Rockwood of Iowa State College, who has been so kind as to test it physiologically. His final report, however, has not been received and we do not wish to make any statement as to its action which might be altered by his complete report. A detailed statement of its action will be included when the present researches are completed and reported.

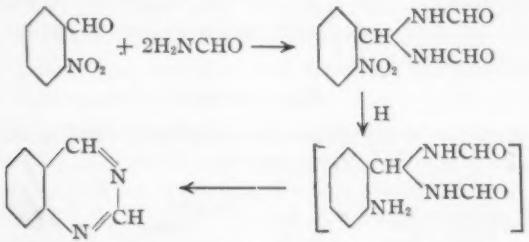
The next step taken up was the preparation of quinazoline itself.

[1] *J. Am. Chem. Soc.*, **46**, 1702 (1922).

Obviously, a study of the physiological properties of a certain series should begin with a study of the parent substance. A survey of the literature gave no information regarding quinazoline itself although a few of its derivatives have been studied to a slight extent.[1] It had been prepared in very poor yield by Bischler and Lang,[2] by Gabriel,[3] and in better yield by Riedel.[4]

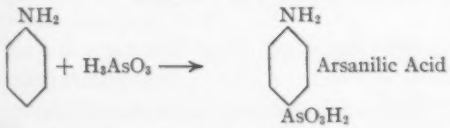
The method of Riedel was selected and was found to give a fair yield although the starting materials are quite expensive. An adaptation of his procedure was made to certain impure starting materials obtainable at much lower cost, rendering a supply of the quinazoline readily available.

By this method crude *o*-nitro benzaldehyde and formamide are condensed to yield *o*-nitro benzylidene diformamide, which on reduction yields quinazoline.

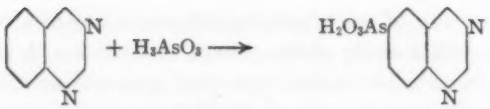


It should be possible to obtain a variety of derivatives of quinazoline with substituents on either the benzene or miazine cycles by altering the character of the starting materials. Thus, substituted *o*-nitro benzaldehydes should yield substituted quinazolines, while the use of urea in place of formamide should yield an amino quinazoline with the amino group on the miazine cycle.

By analogy, from the preparation of arsanilic acid by treating aniline with arsenic acid, it might be possible to obtain a quinazoline arsonic acid by the reaction of quinazoline with arsenic acid.



[1] See Fränkel, "Arzneimittle Synthese," p. 731.
[2] *Berichte*, **28**, 279 (1899).
[3] *Berichte*, **36**, 800 (1907).
[4] D. R. P. 174,941.

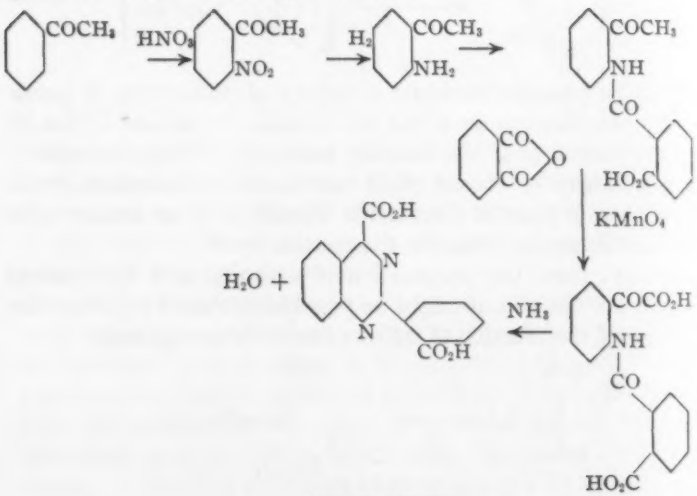


Should this reaction occur it should be adaptable to pyridine, quinoline, and other similar compounds. The reaction has been tried out in a preliminary way and seems to show promise, but sufficient experimental evidence is still lacking so that a complete report will be made later. Arsonic acids may also be obtainable from the amino derivatives by the Bart reaction or by other well known methods.

The above descriptive matter covers our research to date and indicates what is in immediate prospect. It is hoped to prepare a number of other derivatives of quinazoline, for with the promised cooperation of a number of pharmacologists, important information should be obtained. This it is believed, will point the way to further work in this series of compounds and may lead eventually to something of service to mankind.

Reactions

The preparation of the quinazoline analog of cinchophen (2-phenyl quinazoline 4,2′-dicarboxylic acid)



Experimental

Preparation of o-Nitro Acetophenone.—Acetophenone was nitrated in the cold (—5° C.) with fuming nitric acid. The reaction mixture

was diluted with water, the oily reaction product separated, and after purification a mixture of ortho and meta nitro acetophenones was obtained. Considerable time was spent in determining the proper amount of acid to use in order to obtain a satisfactory yield of the ortho compound in the mixture.

Preparation of o-Amino Acetophenone.—The above mixture of ortho and meta nitro compounds was reduced with tin and hydrochloric acid, the reaction mixture neutralized and the *o*-amino acetophenone distilled off with steam, extracted from the distillate with ether, and obtained pure by diminished-pressure distillation.

Preparation of o-Phthalyl Amino Acetophenone.—The amino compound was allowed to react with phthalic anhydride in hot benzene solution. The product was crystalline.

Preparation of Phthalyl Isatinic Acid.—Phthalyl amino acetophenone was oxidized in dilute alkaline potassium permanganate solution, and obtained by filtering from precipitated manganese dioxide, acidifying the solution and allowing the separated oil to crystallize. It was not purified by recrystallization, for it decomposes under this treatment into isatin and phthalic acid.

Preparation of 2-Phenyl-quinazoline-4,2′-dicarboxylic Acid.—Phthalyl isatinic acid was heated in a sealed tube at 140° with methyl alcoholic ammonia in excess. The product was obtained as the diammonium salt in the form of star-shaped groups of needles. These were dissolved in water and the free acid obtained by exact neutralization of the solution with dilute hydrochloric acid. The melting point agreed with the true figure for this acid.

Preparation of the Disodium Salt.—The free acid was dissolved in hot absolute alcohol and a hot alcoholic solution of sodium ethylate added. A clear solution resulted from which the disodium salt began to crystallize in a few seconds. It was cooled, filtered and washed with absolute alcohol till the washing was neutral to litmus.

A solution of the salt was neutral to litmus.

Forty g. of this salt was prepared.

The work so far recorded follows in the main that of Bogert and Nabenhauer and corroborates it.

Several unsuccessful attempts to prepare the above free acid were made using isatin, phthalic anhydride and ammonia under pressure.

Preparation of o-Nitro Benzylidene Diformamide.—*o*-Nitro benzaldehyde and formamide were mixed and allowed to react under the catalytic influence of dry hydrogen chloride. The product was

crystalline and was obtained pure by recrystallization from water.

Preparation of Quinazoline.—*o*-Nitro benzylidene diformamide was reduced with zinc and acetic acid. The reaction mixture was made strongly alkaline and extracted with ether. The latter, after drying and evaporation gave an oil which solidified to a crystalline mass on cooling. This mass was recrystallized from petroleum ether giving a white crystalline substance having the same odor and melting point as recorded in the literature for quinazoline.

Quinazoline is strongly basic in water solution in which it is very soluble.

It should be noted that the *o*-nitro benzaldehyde used is quite expensive. A fair yield of the benzylidene compound has been found to be obtainable from a mixture of ortho and meta nitro benzaldehydes available at relatively low cost.

Preparation of 2,4-Dinitro-benzaldehyde.—2,4-Dinitro toluene and *p*-nitroso dimethylaniline were allowed to react in alcohol solution under the catalytic influence of $Na_2CO_3.IOH_2O$. The resulting anil was hydrolyzed by shaking with dilute acid yielding 2,4-dinitro-benzaldehyde. It is planned to prepare an amino quinazoline, and from it a quinazoline arsonic acid.

The writer wishes to express his very great thanks to the Sigma Xi Foundation through whose assistance this work was in part made possible.

EUGENE M. MCCOLM
Columbia University
May 7, 1926

Mr. McColm worked under the supervision of Dr. Marston T. Bogert, of the department of chemistry at Columbia University, who was awarded $500 by the Committee on Fellowships, to be used in his work in the field of synthetic drugs.

University of Michigan
April 29, 1926

Thus far I have used but $50 of the Sigma Xi funds alloted to me. This is partly because I am drawing also on a grant of $100 made to me by the University of Michigan after the Sigma Xi grant had been made, and partly because I have more time for research during the second semester and the summer. I shall use the remaining money to advantage before next August.

The problem on the result of selection within pure lines of Helmin-

thosporium has been completed and is being prepared for publication. The grant has provided for the computations and some of the culture work on this problem.

My studies on variation and mutation in Pestalozzi Guepini have been carried forward to such a degree as to promise one or two papers by the end of the summer. Culture work, computation of results, preparation of media, measurement of spores, etc., have been furthered by assistance from the fund.

Much preliminary work has been done on the problem of loss of virulence in fungi, in the way suggested in my article in Science for August 28, 1925. Some assistance has been given this work by the Sigma Xi fund.

CARL D. LA RUE

Dr. La Rue is a member of the faculty of the University of Michigan in the department of botany. He was awarded $100 to pay for assistance in culture work to relieve him of some of the routine work connected with investigating the genetics of fungi.

University of Virginia
April, 1926

I take pleasure in reporting progress on the project, to aid which I was awarded $200.00 from the Sigma Xi Foundation last spring. The text entitled "Methods of Mechanical Analyses," has been completed together with certain illustrations to accompany it. The other section, consisting of about 1000 histograms or pyramids showing mechanical composition graphically, has been about half completed, and I expect to be engaged on this part of the work during the next month. Change in my location last year and the pleasure of some prior obligations prevented me from making as early progress on this project as I hoped but it is now going along towards completion and the paper, I believe, will be ready for publication within two or three months.

I have taken up the matter of publication with the Department of Geology at the University of Iowa and think it probable that it will be published as a contribution to the Iowa Natural History Studies. The two papers, the one consisting of a text on methods of mechanical analysis and the other of a graphic portrayal of the mechanical composition of a large number of modern sediments should prove useful as a guide to students and for purposes of comparison and should lead

in the direction of standardization of methods and plotting scales, a reform much needed in this field of diverse procedures.

CHESTER K. WENTWORTH

Dr. Wentworth, formerly of the department of geology at the State University of Iowa, and now of the University of Virginia, was awarded $200 to be used in the construction and operation of a machine to set up in uniform shape certain mechanical analyses of sediments.

Miami University
April 28, 1926

The gift of Sigma Xi was doubled by Miami University, and we are also using $150 granted by the American Association. With the $750 and what work I have done myself, we have been able to describe 500 lichens. There had been 600 described previously, and probably now half of the species for the manual are described. It is not wide of the mark to say that Miss Hendrick handled 100 species with the $300 granted by the Sigma Xi foundation. This involves making descriptions after examination of authentic material, much other material, old descriptions, looking up synonymy, citations, etc. This may not seem like a large amount of work, but I think it would be regarded quite sufficient by persons acquainted with the difficulties of taxonomy, especially when working on a group that has been studied for a long time and is rather obscure and difficult at best.

BRUCE FINK

Dr. Fink is a member of the faculty of Miami University, Oxford, Ohio, in the department of botany. He was awarded $300 to assist in making it possible for him to continue his work in connection with preparing material for a comprehensive manual on lichens.

REPORT OF COMMITTEE OF AWARD OF SIGMA XI FELLOWSHIPS FOR 1926–27

The Committee of Award of the Sigma Xi Fellowships is composed as follows:

DR. WILLIS R. WHITNEY, Director of Research, the General Electric Company.

PROFESSOR E. L. THRONDIKE, of Columbia University.

DR. JOHN H. NORTHRUP, of the Rockefeller Institute of Medical Research.

After reviewing the applications received, the committee announces the awards as follows for 1926–27:

PROFESSOR MARSTON T. BOGERT, Department of Chemistry, Columbia University—$260.

The money will be used to assist in research work under way in the field of synthetic drugs.

DR. BRUCE FINK, Department of Botany, Miami University, Oxford, Ohio—$300.

The money will be used to continue the preparation of the material for a comprehensive manual on the lichens. Miami University matches the gift with an equal amount.

DR. CARL D. LA RUE, Department of Botany, University of Michigan—$250.

The money will be used to continue work on the loss of virulence in fungi, and genetical studies on the Bryophyta.

DR. ROY L. MOODIE, College of Medicine, University of Illinois, Chicago, Ill.—$400.

The money will be used to defray expenses connected with studies in Paleopathology.

PROFESSOR CHARLES J. LYON, Department of Biology, Dartmouth College—$90.

The money will be used to secure translation rights of Kostytschew's "Pflanzenatmung." (This award was voted by the committee last year, but Professor Lyon was obliged to postpone the translation while pursuing a course of study at Harvard.)

DR. ELBERT C. COLE, Department of Biology, Williams College—$125.

The money will be used to defray the expenses connected with investigations relating to the innervation of the digestive tubes of mammals, with especial reference to the enteric innervation in man.

MRS. HELEN SOROKIN, Department of Botany, University of Minnesota—$500.

The money will be used to finance a research problem in cytology.

PROFESSOR EDWARD S. C. SMITH, Department of Geology, Union College—$100.

The money will be used for assistance in the continuation of certain geologic studies of the Katahdin granite mass of central Maine.

MR. FLOYD L. WINTER, Department of Agronomy, University of Illinois College of Agriculture—$75.

This money will be used to meet in part the expense of routine calculations and the setting up of tables in connection with an analysis of data which have accumulated in connection with the study of the effect of selection for chemical composition and certain physical characters in the corn plant.

PROFESSOR LEWIS M. TURNER, Department of Biology, Blackburn College—$250.

This money will be used to finance a rather extensive field problem —a study of "The Effects of Alternate Flooding and Draining on the Botanical Content of the Illinois River Valley."

ERIC KNIGHT JORDAN

Eric Knight Jordan, the son of David Starr Jordan and Jessie Knight Jordan was killed on March 10, 1926, by the overturning of an automobile. He was on his way to a geological investigation of the Santa Maria region in Southern California.

In Eric Jordan a great scientific name gave fair promise of receiving new luster. He was hardly more than a boy when he died, for he had been born in San Francisco on September 27, 1903. But he had already achieved distinction in his chosen field. Before entering the university, he had made a considerable collection of mollusks of California and of various shores in Europe. While in a secondary school he had prepared a manual of the mollusks of California. The book, which was never published, embodied considerable original work, especially on the Chitons and the minute snails called Odostomea. His studies on the Molluscan fauna of Trinidad Head (California) were written at the age of fifteen and published by the U. S. National Museum.

He was graduated from Stanford University in 1923, with Geology as his major subject and Zoology as a minor. In 1924, under the auspices of Cornell University, he made a large collection of fishes from Hawaii. Under the direction of the Academy [California Academy of Sciences?] he later took part in a biological and geological survey of the Off Shore Islands of Mexico, and also in a survey of the middle portion of Lower California. The reports on these last two expeditions are still unpublished.

His chief publications were: The Mollusks, Living and Fossil, of Lower California, and Their Testimony as to Climatic Conditions in the Miocene Age; a Catalogue of the Fishes of Hawaii with account of new species (in collaboration with D. S. Jordan); a Review of the Fishes of Hawaii, based on his own collection in 1924. At the time of his death he was a graduate student in Geology and Assistant Curator in the same subject in the California Academy of Sciences.

He was in the perfect bloom of his young manhood: lithe, tall, vigorous, a lover of the High Sierras. A clear-headed and persistant worker, he was also a born executive and a master of English. His love for biological studies approached genius; but there was none of the abnormal or repellent traits of the "prodigy" about him; his

personality remained sweet and winsome. He was married but one-month before his death to one of his classmates, a gifted and lovable young woman, Elizabeth Roper Jordan. The grief of his bride and of his parents is too sacred for the intrusion of public sympathy. But the scientific world realizes that heredity and early training under an incomparable master had given Eric Jordan opportunities which were perhaps unique. It is a priceless instrument that has been broken. *Laboremus!*

ALBERT GUÉRARD

—(Reprinted from *Unity*)

[Eric Knight Jordan was elected to Sigma Xi at the age of nineteen, and was the son of Chancellor David Starr Jordan, active in Sigma Xi since 1887, an honored member of its Alumini Committee, and known internationally for his work in the cause of education and of world peace.]

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The national secretary is prepared to supply keys at reasonable rates. Information will be sent on request.

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Chapter Secretaries are requested to fill out these cards carefully giving **PERMANENT** addresses of the members, and return to the national secretary.

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All changes of address and all other correspondence should be addressed to the Secretary of Sigma Xi, Edward Ellery, Union College, Schenectady, N. Y.